

REMARKS

The present invention relates to a method of forming a coating film involving electrodeposition coating.

In the Office Action dated July 2, 2003, claims I - 11 and 13 - 18 were rejected, and claims 12, 19, and 20 were withdrawn from consideration, further to an earlier telephonic restriction requirement. Claims 1 and 2 were objected to due to misspelling of two terms. Claims 5, 7, 10, and 13 - 16 were rejected under 35 U.S.C. 112, second paragraph, with respect to the phrase "modifications of these" since, as indicated by the Examiner, a modification of the acrylic resin would still be an acrylic resin. Claims 1 - 6, 8, 9, 11, 12, 17, and 18 were rejected under 35 U.S.C. 102(h) based on EP 085207 A1 (hereinafter EP `207), and claims 7, 10, and 13 - 16 were rejected under 35 U.S.C. 103(a) based on EP `207.

In order to advance the prosecution of the application, an Interview was arranged, and was conducted on October 15, 2003. Applicants express their appreciation to the Examiner for granting the Interview, which is believed by Applicants to have advanced the prosecution of the application. The results of the Interview are indicated in the Examiner's Interview Summary (Form PTO-413), as well as in the comments below, constituting Applicant's statement of the substance of the interview.

As was explained in detail at the Interview, the present invention provides a method of forming a coating film by which a coating film excellent in weathering resistance, light degradation resistance, smoothness and the like can be formed on the outer panel portion of an

article to be coated such as a car, and a portion of an article to be coated such as a car, and a coating film excellent in rust prevention can be formed on the inner panel portion (bag-structured portion) of the article to be coated, with the interface between the outer and inner panel portions of the article being excellent in rust prevention and finish as well, and by which resources saving and coating cost reduction can be obtained (described, e.g., at page 4, line 29 - page 5, line 5 of the specification).

More particularly, in accordance with the present invention, it has been found: (1) that when a coating capable of providing performance characteristics required for the intermediate coating in the conventional use, namely weathering resistance, light degradation resistance, smoothness, chipping resistance, rust prevention (dry-wet method) and adhesiveness to materials and so forth, is used as a cathodic electrodeposition in the first stage, the step of an intermediate coating, followed by baking thereof, which is generally carried out, can be omitted and, thus, the process costs required for air conditioning, temperature adjustment and like controls can be reduced, resources can be saved, and coating cost reductions can be attained because of the reduction of the film thickness of the outer panel portion; (2) that when an electrodeposition coating having a digital electrodepositability is used as the first stage cathodic electrodeposition coating, very good rust prevention and finish are obtained in the interface between the outer panel portion and the inner panel portion (bag-structured portion) of the article to be coated; (3) that when sulfonium group-containing resin is used in the first stage cathodic electrodeposition coating, the step of heating for curing and the step of preheating between the first stage cathodic electrodeposition coating and second stage cathodic electrodeposition coating can be omitted; and

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(4) that when an electrodeposition coating having high throwing power is used as the second stage cationic electrodeposition coating, a high level of corrosion prevention and rust prevention can be secured even in the inner panel portion (bag-structured portion) of the article to be coated and, further, only the inner panel portion (bag-structured portion) of the article to be coated is coated with the second stage cationic electrodeposition coating, so that the throwing power can be further improved. Based on these findings, the present invention has now been achieved (described, e.g., at page 5, line 8 and page 6, line 6 of the specification).

Amended claim I herein, further to the discussions at the Interview, clarifies the essence of the present invention. Namely, the present invention comprises two electrodeposition processes, each of which comprises multiple steps, as have now been recited in clear detail in amended claim 1.

By applying the first process, characteristics required for the intermediate coating in conventional use are provided. This includes "digital electrodepositability".

In the process steps for forming electrodeposition coating [1], the inner panel portion (bag -structured portion) of the article need not be coated, and the outer panel portion is coated sufficiently to obtain the characteristics required for the intermediate coating.

In the process steps for forming electrodeposition coating [2], the film should be formed in the inner panel portion (bag-structured portion) of the article by electrodeposition coating having "high throwing power".

As explained above, since the objects of these two series of process steps of the overall electrodeposition method are very different, these two series of process steps are different, and these series of process steps are further distinguished by the interposition of the drying step. On the other hand, the cited prior art discloses only an electrodeposition coating having "high throwing power". Claim I of the EP `207 provides, *inter alia*, "A cationic electrodeposition coating process which comprises the steps of:

- (1) immersing a substrate in a cationic electrodeposition coating composition;
- (2) applying a voltage between an anode and said substrate, which serves as a cathode, to thereby cause coat film deposition: and
- (3) further applying a voltage to the coat film deposited so as to increase electric resistance per unit volume of said coat film".

Step (2) of EP `207 might be considered to correspond to the process of applying an electrodeposition coating [1] of the present invention, and step (3) of EP `207 might be considered to the process of applying an electrodeposition coating [2] of the present invention.

In contrast, in the presently amended claim 1, the process of applying electrodeposition coating [1] thereon comprises (ii) a step of applying a voltage between the article to be coated and the anode, followed by a drying step after formation of electrodeposition coating [1], and

then by a further step of applying a higher voltage in a process step (ii) for forming electrodeposition coating [2].

Therefore, the method of coating of EP `207 does not render the present invention obvious. In EP `207, there is no description of the process of applying electrodeposition coating [1]. In the Example 6 of the present application (see page 63 and Table 2 of page 66 of the present specification), electrodeposition coating [1] and electrodeposition coating [2] are seen to be similar; however, the conditions of electrodeposition are different. Therefore, considering the details, these processes are seen to be different. The process of applying electrodeposition coating [1] is performed at a voltage of 100V in Example 6. As described in the Reference Example I (page 57-59 and Table I of page 61), the throwing power was not obtained by the electrodeposition coating composition [1-6] at a voltage of 100V.

The process of applying electrodeposition coating [2] is performed at a voltage of 240V in Example 6. As described in the Reference Example 1, the throwing power was obtained by the electrodeposition coating composition [2] at a voltage of 240V.

Thus, it is seen that the condition of the electrodeposition is very important for controlling properties such as "digital electrodepositability" and "high throwing power". Although a very similar electrodeposition coating composition is used in Example 6, the electrodeposition coating process is not identical at all. Accordingly, the present invention is novel. Further, the method comprising two processes of electrodeposition coating is not suggested

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in the prior art. Accordingly, the present invention is unanticipated, unobvious, and is patentable over EP `207.

In view of the above, reconsideration and allowance of this application, including pending examined claims I - 11, 13 - 18, and 21 - 22 is respectfully submitted to be proper, and such actions are hereby earnestly solicited.


If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the local Washington, D.C. telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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